REMARKS

This Amendment is submitted in reply to the Final Office Action dated December 23, 2009. Applicant respectfully requests reconsideration and further examination of the patent application pursuant to 37 C.F.R. § 1.113.

Summary of the Examiner's rejections

Claims 1-3, 7-11, 15-17, 23-25, 28 and 30-35 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Nevo (WO 00/04729) in view of Dupuy (US 5,479,409).

Claims 4-6, 12 and 18-22 under 35 U.S.C. § 103(a) as being unpatentable over Nevo (WO 00/04729) in view of Dupuy (US 5,479,409) and further in view of Leprieur (US. 6,959,201).

Claim 29 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Nevo (WO 00/04729) in view of Dupuy (US 5,479,409) and further in view of Schwarz (US 7,248,889).

Summary of claim amendments

Applicant has canceled claims 2, 4 and 17 (without prejudice), amended claims 1, 5-6, 10, 12 16, 22 and 33, and added new claims 36-37. The support for the amendments to independent claims 1 and 16 can be found on page 4, lines 3-20, page 11, lines 27-32, and claims 2 and 4 in the originally filed patent application. The amendments to dependent claims 5-6, 10, 12, 22 and 33 were made for antecedent purposes in view of the amendments made to independent claims 1 and 16. The support for the new claims 36 and 37 can be found on page 8, lines 11-29 and page 26, lines 1-5 in the originally filed patent application. No new subject matter has been added.

Remarks regarding the §103(a) rejections

Applicant respectfully submits that the amended independent claim 1 is not

disclosed or suggested by Nevo, Dupuy, Leprieur, and Schwarz or any combination thereof. The amended independent claim 1 recites the following:

> 1. A method for internally synchronizing cell measurements in a mobile communication apparatus having a first active radio access means adapted to communicate according to a first radio access technology (RAT) and a second passive radio access means adapted to communicate according to a second RAT, the method implemented by the mobile communication apparatus comprising the steps of:
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> generating a common time event (CTE) upon issuance of a request to initiate the cell measurements;
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> generating a time reference common to the first and the second radio access means by registering counter values from a first and second counter provided in the first and the second radio access means respectively in response to the CTE;
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> obtaining, by said first radio access means, a measurement gap schedule including a time schedule in a time format of said first radio access means, said time schedule indicating a time gap during which the second radio access means is allowed to be active and not interrupt communications of the first radio access means, said measurement gap schedule includes an activation time of the time schedule where the activation time is determined in the time format of said first radio access means and the activation time is determined based on a time distance from the CTE;
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> forwarding said measurement gap schedule to said second radio access means; and
>
> translating said measurement gap schedule by said second radio access means using a time reference of the registered counter value in the second counter to determine the activation time in a time format of said second access means (emphasis on main distinguishing limitations).
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> Note: The new claims 36 and 37 have been added which recite two different ways that can be used to initiate the cell measurements which in turn causes the generation of the CTE.

Applicant has amended independent claim 1 to recite several new limitations that have been highlighted in the previous paragraph which indicate in detail how the mobile communication apparatus is able to internally synchronize cell measurements in accordance with the present invention. Nevo, Dupuy, Leprieur, Schwarz and any combination thereof fail to disclose or suggest all of the limitations recited in the amended independent claim 1. The Examiner's closest prior art Nevo discloses three different embodiments in which a mobile station (MS) is handed-over from a first base

station (which is of a first type) to a second base station (which is of a second type). Nevo's first embodiment is as follows:

> In some of these preferred embodiments, the MS is in communication with a CDMA base station, when it is determined that the MS may be handed over to a GSM/TDMA base station. CDMA transmission by the MS transceiver is interrupted temporarily, during which time the unit performs a GSM neighbor scan, generally in accordance with GSM standards, to acquire and synchronize to the TDMA base station. Preferably, the CDMA transmission is interrupted for a single frame, typically 20 msec long, creating an idle time slot in accordance with the IS95 standard. After the TDMA base station is identified, and suitable messages have been exchanged, a traffic channel between the base station is opened, and the MS is switched to the TDMA base station while interruption of a telephone call being conducted by the MS is substantially minimized.
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> (see page 4, lines 18-29)

Thus, Nevo's first embodiment requires that the MS obtain a synchronized clock signal from the GSM/TDMA base station before the MS can acquire and synchronize to the GSM/TDMA base station. The GSM/TDMA base station has its own synchronization clock and thus needs to provide this information to the MS (see page 4, lines 12-14). In contrast, the claimed invention enables the mobile communication apparatus to internally synchronize cell measurements using the newly added highlighted limitations without having to obtain a synchronized clock signal externally from one of the remote base stations.

Nevo's second embodiment is as follows:

> In others of these preferred embodiments, the MS is in communication with a TDMA base station, when it is determined that the MS may be handed over to a CDMA base station. In order to synchronize with the CDMA station, the MS acquires the time of day, preferably by receiving an accurate time of day from the TDMA base station, wherein the GSM network is provided with equipment necessary to generate and broadcast the time of day. Preferably, the network includes a cell broadcast system (CBS), in accordance with the GSM standard, which is used to receive the time of day, provided, for example, by the Global Positioning System (GPS) or received from one or more of the CDMA base stations, and broadcast it through the network to the MSs.

(see page 4, line 30 through page 5, line 6)

Thus, Nevo's second embodiment requires that the MS obtain the time of day from the TDMA base station. The MS needs the time of day before it can acquire and synchronize to the CDMA base station (see page 4, lines 14-15). In contrast, the claimed invention enables the mobile communication apparatus to internally synchronize cell measurements using the newly added highlighted limitations without having to obtain a time of day externally from one of the remote base stations.

Nevo's third embodiment is an alternative to the second embodiment's scenario where the MS is in communication with a TDMA base station when it is determined that the MS may be handed over to a CDMA base station. However, in the third embodiment, the MS temporarily interrupts the TDMA reception to obtain the time of day (synchronized clock signal) from the CDMA base station so that the MS can acquire and synchronize to the CDMA base station (see page 5, lines 7-8). In contrast, the claimed invention enables the mobile communication apparatus to internally synchronize cell measurements using the newly added highlighted limitations without having to obtain a time of day externally from one of the remote base stations.

As can be seen, Nevo's three embodiments all require that the MS receive clock signal or time of day from one of the base stations before the MS is handed-over from a first base station (which is of a first type) to a second base station (which is of a second type). In contrast, the claimed invention enables the mobile communication apparatus to internally synchronize cell measurements using the newly added highlighted limitations without having to obtain a clock signal or time of day externally from one of the remote base stations. Thus, if Nevo's MS does not internally synchronize cell measurements then it follows that Nevo also fails to disclose or suggest the new highlighted limitations which indicate in detail how the mobile communication apparatus is able to internally synchronize cell measurements in accordance with the present invention. Dupuy, Leprieur, or Schwarz fail to correct Nevo's deficiencies.

Dupuy discloses the following:

> FIG. 4 shows an internal handover procedure in accordance with the invention, i.e. the station with which the mobile station is communicating and that with which the mobile station wishes to set up communication are part of the same BSS.
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> Steps 1 through 3 previously described with reference to FIG. 3 are identical in the context of the invention, i.e. the BSC considers that it is necessary to carry out a handover procedure because the mobile station MS could communicate better with the station BTS2 than with the station BTS1 with which it is currently communicating. The BSC activates a channel of the station BTS2 which acknowledges the communication, the BSC having determined its characteristics.
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> The present invention is distinguished from the prior art in that in step 4 the BSC sends a Handover Channel (HO CHN) instruction telling the mobile station MS a) that it must interrupt its communication with the first station BTS1 in order to send a (first) sequence of synchronization signals HO ACCESS (step 5) to the second station BTS2 to enable the latter to measure the synchronization signal transit time which is equal to half the timing advance TA and b) that the mobile station MS must continue to communicate with the first station BTS1 immediately after sending the first sequence of synchronization signals HO ACCESS. The new message HO CHN is therefore distinguished from the prior art signal HANDOVER CMD in that the mobile station MS continues to communicate with the first station BTS1 after sending the synchronization messages HO ACCESS and communication with BTS1 is interrupted for only about 25 to 30 ms (sending of four successive messages). The number of successive synchronization messages is not necessarily four, of course, and may be smaller. The instruction HO CHN is forwarded transparently by the station BTS1 to the mobile station MS.
>
> When the station BTS2 receives one of these synchronization messages it calculates the timing advance (TA) and supplies it to the BSC in a synchronization detection message HO DETECTION (TA). The BSC then sends to the mobile station via the station BTS1 a control signal HO CNMD (TA) (step 6) containing the timing advance TA.
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> The mobile station MS then knows the timing advance it must use to communicate with the station BTS2.

(see col. 8, lines 14-56)(emphasis added)

Applicant submits that Dupuy does not cure Nevo's deficiencies and in fact Dupuy has the same main defect as Nevo in that Dupuy's BSC needs to send the mobile station a control signal HO CMD that contains the timing advance TA and once the mobile station knows the timing advance it knows when to communicate to BTS2

(see col. 8, lines 48-56). Thus, if Dupuy's mobile station does not internally synchronize cell measurements then it follows that Dupuy also fails to disclose or suggest the new highlighted limitations which recite in detail how the mobile communication apparatus is able to internally synchronize cell measurements in accordance with the present invention.

Leprieur discloses the following:

> An object of the present invention is therefore to propose a method of determining the time shift between at least two mobile radio modes to enable a multimode mobile terminal to set up a call in accordance with the respective radio access technology associated with each mobile radio mode.
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> For example, an object of the invention is to enable a mobile terminal to determine the time in the GSM mode while it is operating in the UMTS mode, and vice versa.
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> Thus the invention more specifically provides a method of switching from a first mobile radio mode to a second mobile radio mode in a multimode mobile radio terminal having a first part and a second part respectively operating in compliance with first and second radio access technologies respectively associated with the first and second mobile radio modes and respectively provided with first and second clocks, the method comprising the following steps: locking a first part of the mobile terminal to a first mobile radio mode associated with an first clock; the mobile terminal calculating the time shift between the clocks of the two mobile radio modes; correcting the time of a second part of the terminal using the calculated time shift; and switching a second part of the mobile terminal to a second mobile radio mode associated with the second clock.
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> In an embodiment, calculating the time shift comprises the following steps: detecting the start of a radio frame of the first radio access technology associated with the first mobile radio mode; storing the time indicated by the first clock associated with said first mode and starting a counter; detecting the start of a radio frame of the radio access technology associated with the second mobile radio mode; storing the updated time indicated by the first clock associated with said first mobile radio mode and the time indicated by the second clock associated with said second mode, and stopping the counter; and calculating the time shift from the stored times indicated by the first and second clocks and the value of the counter.
>
> According to a feature, the supply of power to one part of the terminal operating in one mobile radio mode is interrupted and said method includes a step of activation of said one part by a second part operating in another mobile radio mode and a step of updating the time of said activated part of the terminal.
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> The present invention also provides a multimode mobile radio terminal including a microcontroller and having two parts adapted to communicate in compliance with respective radio access technologies associated with respective different mobile radio modes, the terminal including a counter adapted to count

> the time that has elapsed between the start of a radio frame of the first technology and the start of a radio frame of the second technology, means for calculating the time shift between said radio access technologies, and means for updating the time of a part of the terminal to the time of the technology associated with said part.
>
> According to a feature the counter has a clock with a shorter period than frame counters of the radio access technologies.

(see col. 2, line 28-col. 3, line 17)(emphasis added)

Applicant submits that Leprieur does not cure Nevo's deficiencies in that Leprieur fails to disclose or suggest the newly added highlighted limitations which recite in detail how the mobile communication apparatus is able to internally synchronize cell measurements in accordance with the present invention. Moreover, Applicant submits that it would be improper for the Examiner to modify Nevo's MS in view of Leprieur in an attempt to make an obviousness rejection of the amended independent claim 1. In this regard, Nevo's MS must receive a clock signal or time of day from one of the base stations before the MS is handed-over from a first base station (which is of a first type) to a second base station (which is of a second type). If the Examiner where to try and modify Nevo's MS to use Leprieur's counter in some manner to internally synchronize cell measurements then such a modification would clearly require a substantial reconstruction and redesign of Nevo's MS as well as change the basic principle under which Nevo's MS was designed to operate where Nevo's MS needs to receive a clock signal or time of day from one of the base stations. In such a situation, there would be no motivation to combine the teachings of Nevo and Leprieur to read-on the invention (see MPEP 2143.01).

Schwarz discloses the following:

> To overcome these drawbacks, the invention detects information characterizing the radio link imbalance in the weaker cell and in the stronger cell. This information is used to evaluate an asymmetry parameter which is a measure of the radio link imbalance between the mobile and the respective base stations being different, i.e. asymmetric. The enhanced power control of the invention then increases the transmission power of the respective mobile station respectively prevents it from being lowered by the power control of the strongest

> link, in order to get resp. maintain a strong enough transmission signal for the weaker radio link to reach and maintain the uplink synchronisation of the signal emitted by that mobile station. Thus, in accordance with the invention the base station in the weaker cell will establish resp. maintain the synchronisation of the mobile station during soft handover, when the radio link is set up.
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> (see col. 5, lines 9-27)

The Examiner cited Schwarz to teach where the first radio access technology is WCDMA (see page 19 in the Final Office Action). Schwartz does not cure Nevo's deficiencies and does not disclose or suggest the new highlighted limitations which indicate in detail how the mobile communication apparatus is able to internally synchronize cell measurements in accordance with the present invention. In view of at least the foregoing, Applicant submits that the aforementioned substantial differences between the amended independent claim 1 and the cited Nevo, Dupuy,Leprieur and Schwartz are indicative of the patentability of the amended independent claim 1 and the corresponding dependent claims 3, 5-12, 15 and 36-37.

Applicant respectfully submits that the amended independent claim 16 is patentable in view of Nevo, Dupuy, Leprieur, Schwartz or any combination thereof. The independent claim 16 recites the same or similar distinguishing limitations that have been discussed above with respect to amended independent claim 1. As such, the aforementioned remarks regarding the patentability of independent claim 1 apply as well to independent claim 16. Accordingly, Applicant respectfully submits that independent claim 16 and the corresponding dependent claims 18-25 and 28-35 are patentable in view of Nevo, Leprieur or any combination thereof.

CONCLUSION

In view of the foregoing remarks, Applicant believes all of the claims currently pending in the application to be in a condition for allowance. Therefore, Applicant respectfully requests that the Examiner withdraw all objections and rejections and issue a Notice of Allowance for pending claims 1, 3, 5-12, 15-16, 18-25 and 28-37.

The Commissioner is hereby authorized to charge any fees for this paper to Deposit Account No. 50-1379.

Applicant requests a telephonic interview if the Examiner has any questions or requires any additional information that would further or expedite the prosecution of the Application.

Respectfully submitted,

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Date: March 19, 2010

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